

**ABSTRACT**

The invention provides structure and method for achieving a uniformly polished  
5 or planarized substrate such as a semiconductor wafer including achieving substantially  
uniform polishing between the center of the semiconductor wafer and the edge of the  
wafer. In one aspect the invention provides a polishing apparatus including a housing,  
a carrier for mounting a substrate to be polished, a retaining ring circumscribing the  
carrier for retaining the substrate, a first coupling attaching the retaining ring to the  
10 carrier such that the retaining ring may move relative to the carrier, a second coupling  
attaching the carrier to the housing such that the carrier may move relative to the housing,  
the housing and the first coupling defining a first pressure chamber to exert a pressure  
force against the retaining ring, and the housing and the second coupling defining a  
second pressure chamber to exert a pressure force against the subcarrier. In one  
15 embodiment, the couplings are diaphragms. The invention also provides a retaining ring  
having a special edge profile that assists in smoothing and pre-compressing the polishing  
pad to increase polishing uniformity. A method for polishing and a semiconductor  
manufacture is also provided.